Lyme disease is an infectious illness commonly caused by a tick bite infected with the spiral-shaped bacterium called *Borrelia burgdorferi*. Of special interest, the disease is named after the towns of Lyme and Old Lyme, Connecticut. There are different phases of infection in Lyme disease: early localized phase, early disseminated phase, and chronic phase. The earlier the infection can be identified, the greater the success in treatment.

**Early Localized Lyme**

The classic sign of early local infection with Lyme disease is a circular, outwardly expanding rash called erythema migrans, or EM rash, which may occur at the site of the tick bite three to 30 days after the bite. The textbook presentation of the EM rash commonly appears as a bull’s eye, hence its nickname “bull’s eye rash.” Unfortunately, the EM rash is absent in more than 50% of Lyme disease cases, which is one reason an acute Lyme infection may be missed by many physicians. The physician should consider Lyme when a patient presents with flu-like illness, fever, malaise, muscle soreness, and headache after camping, hiking, or gardening.

**Early Disseminated Lyme**

In early disseminated Lyme, the bacteria will spread through the bloodstream, contributing to muscle, joint, and tendon pain. Dizziness and headaches, heart palpitations, severe fatigue, and mood changes are common.

**Chronic Lyme Disease**

Chronic Lyme disease presents a challenge to the astute clinician because the Infectious Diseases Society of America (IDSA) denies its very existence, while the International Lyme and Associated Diseases Society (ILADS) believes the Lyme infection exists past 30 days, causing ongoing symptoms and disability.

Joseph Burrascano, MD, a physician at the forefront of Lyme disease treatment and research in the United States, and author of “Advanced Topics in Lyme Disease: Diagnostic Hints and Treatment Guidelines for Lyme and Other Tick Borne Illness,” offers the following definition:

For a diagnosis of chronic Lyme disease, these three criteria must be present:
1. Illness present for at least one year.
2. Persistent major neurologic involvement (such as encephalitis/encephalopathy, meningitis, etc.) or active arthritic manifestations (active synovitis).
3. Active infection with *Borrelia burgdorferi* (Bb), regardless of prior antibiotic therapy (if any).

ILADS, the US-based organization that recognizes chronic Lyme disease, has adopted a set of treatment guidelines that have been widely used in clinical practice (available at www.ilads.org). They state the following:

“Chronic Lyme disease is inclusive of persistent symptomatologies including fatigue; cognitive dysfunction; headaches; sleep disturbance; and other neurologic features such as demyelinating disease, peripheral neuropathy and sometimes motor neuron disease; neuropsychiatric presentations; cardiac presentations including electrical conduction delays and dilated cardiomyopathy; and musculoskeletal problems.”

**Lyme Disease: The Great Imitator**

Lyme disease is known as the “Great Imitator.” Its list of symptoms is long and varied.

**Following is a list of illnesses that Lyme disease can mimic:**
- Amyotrophic lateral sclerosis (ALS)
- Attention deficit disorder
- Autism
- Chronic fatigue syndrome
- Crohn’s disease
- Encephalitis
- Fibromyalgia
- Interstitial cystitis
- Irritable bowel syndrome
- Juvenile arthritis
- Lupus
- Meningitis
- Motor neuron disease
- Multiple sclerosis
- Obsessive-compulsive disorder
- Parkinson’s disease
- Psychiatric disorders (depression, bipolar, OCD, etc.)
- Raynaud’s syndrome
- Rheumatoid arthritis
- Scleroderma
- Sjogren’s syndrome
- Thyroid disorders

And that is just a sampling.

**Diagnosis**

I recommend starting with the following tests:

- **CD57 Panel (cellular stress) (HNK-1) (LabCorp: 505026)**
- **Complement C4a (complement stress) (LabCorp: 004330)**

The CD57 is not so much a test to detect Lyme disease as it is an immune marker that tends to be low in the presence of Lyme disease. The sicker the patient, the lower the CD57 count appears to be.
Measuring the CD57 count can be helpful for a number of reasons. First, other illnesses such as chronic fatigue syndrome, rheumatoid arthritis, or multiple sclerosis might mimic Lyme, but those illnesses will not cause a drop in the CD57, so this marker can help determine Lyme disease as distinct from other chronic illnesses with similar symptom pictures. In addition, the CD57 can be used to track treatment progress because it should return toward normal levels as the infection improves.

**Western Blot Test**

The Western Blot test is one of the foremost tests used in the evaluation of Lyme disease. It is also an indirect test, as are the ELISA and IFA.

A Western Blot reports certain numbers, or “bands,” which can be positive, negative, or indeterminate. The bands represent certain antigens, which are the parts of the bacteria that evoke a reaction from the immune system.

There is a discrepancy as to which bands are clinically significant, and how many of the bands need to be positive to get a positive result. FDA-approved, commercially available kits are restricted from reporting all of the bands. These rules were set up in accordance with the Centers for Disease Control and Prevention’s (CDC) surveillance criteria. Private laboratories that are not held to these rules and criteria are free to produce tests that actually help people get an accurate assessment.

**One of the private laboratories I recommend is IGeneX.**

By IGeneX criteria, IgM Western Blot (WB) is considered positive if two or more of the double-starred bands are present from either Group 1 or Group 2.

**Group 1:** 23-25, 31, 34, 39, and 83-93 kDa; **Group 2:** 23-25, 34, 39, 41, and 83-93 kDa; and indeterminate if only bands 31 and 41 kDa are present.

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<th>IGENE-X RESULT</th>
<th>CDC/NYS RESULT</th>
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<td><strong>83-93 kDa:</strong></td>
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By CDC/NYS criteria, IgM Western Blot is reported positive if two of the following bands are present: 23-25, 39, and 41 kDa.

Clearly, the expanded IGeneX criteria give a more rounded and inclusive view of Lyme immune recognition, and allow for a more clinically helpful assessment. Many Lyme-literate physicians and experts in Lyme disease believe that just one positive or even equivocal of the above bands is clinically significant.

The IgG Western Blot has even more rigorous criteria than the IgM Western Blot.

By IGeneX criteria, IgG Western Blot (WB) is considered positive if two or more of the double-starred bands below are
present from either Group 1 or Group 2.

**Group 1:** 23-25, 31, 34, 39, and 83-93 kDa; **Group 2:** 23-25, 34, 39, 41, and 83-93 kDa; and indeterminate if only bands 31 and 41 kDa are present. A positive result suggests exposure to *Borrelia burgdorferi*.

By CDC/NYS criteria, IgG WB is reported positive if five of the following bands are present: 18, 23-25, 28, 30, 39, 41, 45, 58, 66, and 83-93 kDa.

Although the most clinically useful of all indirect tests, a positive Western Blot still only suggests exposure to Lyme disease; it does not diagnose Lyme disease. Diagnosis is still done based on the clinical picture—a person’s history and exposure coupled with his or her current symptoms.

**Treatment**

Although there is no cookie-cutter, one-size-fits-all protocol for Lyme disease, there are accepted pharmaceutical and botanical treatments that have been found to be effective. As chiropractors, we are not licensed to prescribe medications, but it is still important to understand what are the now-accepted protocols passed down from the International Lyme and Associated Diseases Society (ILADS). For information on the accepted pharmaceutical protocols, visit the ILADS website at www.ilads.org.

**Natural Antibiotics and Antimicrobials**

I have seen natural antimicrobial agents work effectively against Lyme disease. Please note that the following information is just a sampling of available, nonpharmaceutical treatments for these infections, and it is intended as an introduction, not a comprehensive guide. The following protocol is provided by Dr. Chas Gant, director of Education and Training of the Academy of Functional Medicine and Genomics.

**Order Herbals at www.nutramedix.com.**

Begin with three drops of the recommended herbals in a glass of water, twice a day. The herbals can be mixed in the same glass of water. Each day, add an additional three drops of each herbal, working up to 30 drops twice a day in 10 days. At that time, you don’t need to count the drops, but just use one dropperful twice a day. When an herbal has been worked up to one dropperful in a two-month period, and it is the one carried over to the next two-month period, you don’t have to start low—just continue at one dropperful twice a day. If the...
patient experiences adverse symptoms, it is probably die-off (that’s good). The patient should contact you and reduce the dosage until the die-off symptoms have stabilized.

First two-month interval of herbal treatment.
Begin with Cumanda and Samento and use these as directed for two months. Always start low (three drops twice a day) and go slow with any new herbal products.

Second two-month interval of herbal treatment.
After taking Cumanda and Samento for two months, discontinue Cumanda and add Banderol, and take Samento and Banderol for the next two months. When starting any new herbal product, start low and go slow.

Third two-month interval of herbal treatment.
After taking Banderol and Samento for two months, discontinue Samento and add Enula, and take Enula and Banderol for the next two months. When starting any new herbal product, start low and go slow.

Fourth two-month interval of herbal treatment.
After taking Enula and Banderol for two months, discontinue Banderol and add Houttuynia, and take Enula and Houttuynia for the next two months. When starting any new herbal product, start low and go slow.

Fifth two-month interval of herbal treatment.
After taking Enula and Houttuynia for two months, discontinue Enula and add Mora, and take Mora and Houttuynia for the next two months. When starting any new herbal product, start low and go slow.

Sixth two-month interval of herbal treatment.
After taking Mora and Houttuynia for two months, discontinue Houttuynia and add Cumanda, and take Cumanda and Mora for the next two months. When starting any new herbal product, start low and go slow.

Continue this rotating process indefinitely, removing one herbal product every two months and then adding another as previously detailed.

The diagnosis and treatment of Lyme disease can be both challenging and rewarding. This disease is hitting epidemic proportions and more healthcare professionals should become knowledgeable in diagnosing and treating this debilitating condition.

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Dr. Ronald Grisanti is the founder and medical director for Functional Medicine University (www.FunctionalMedicineUniversity.com). He is a member of the International Lyme and Associated Diseases Society (ILADS). He had the opportunity to do a one-week preceptorship with Dr. Richard Horowitz. Dr. Horowitz has treated more than 12,000 cases of Lyme disease and is the author of Why Can’t I Get Better? Solving the Mystery of Lyme and Chronic Disease.